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NEW TELEVISION CENTERS

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Unsigned Article

The past year was marked by putting new television centers into operation, and also expanding and further improving the technical means of existing television centers.

At the end of last year the rebroadcasting television center in the city of Kalinin came into operation. The television signals and the signals of sound accompaniment are supplied to Kalinin from Moscow over a wire line of communications. Established in Kalinin has been an ultrashort-wave television station for rebroadcasting. It consists of 2 transmitters: one for transmission of picture signals (2 kw capacity) and the other for transmission of the sound accompaniment signals (1 kw capacity). The television rebroadcast center operates in the second frequency television channel. The transmitters have high qualitative indexes. They operate in one common antenna-feeder system. The antenna of the turnstile type has been put up on a free-standing tower 65 m in height.

The first broadcasts showed the completely satisfactory quality of the pictures and the sound accompaniment. According to reports received, the transmissions of the rebroadcasting television center are already being seen at points 30 to 40 km away from Kalinin.

In March of this year the Kharkov television center came into operation. Until completion of work in construction of a large studio, it will transmit small theatrical productions and motion-picture films from a temporary studio.

The first model of the equipment of a standard television center has been put in the center. The ultrashort-wave television radio station comprises a television transmitter of 5 kw capacity and a sound transmitter of 2.5 kw capacity. The television center operates in the second frequency channel.

In the television transmitter modulation is realized in preliminary stages with further amplification of modulated oscillations. It should be noted that this transmitter brings in very slight distortions and insignificantly lowers the fidelity of the transmitted picture. Both transmitters are convenient in operation and control; the latter is done from a common board equipped with video-control devices. With their help it is possible to verify the quality of the signal in the main sections of the transmitter's circuit. The transmitters operate in a common antenna-feeder system (turnstile type antenna).

The set and studio equipment of the Kharkov center is made up in the form of independent sets, one of which is designed for conducting studio transmissions, and the other, chiefly for film transmissions.

The new set and studio equipment of television centers is designed for station assembly from standard blocks. The equipment common for both sets -- synchrogenerators, linear amplifiers, basic organs of operation and control -- are put out in the film transmitter, which is at the same time the central set of the television center.

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In the film set 3 camera channels are provided; in the studio set 2 channels. Each camera channel consists of a transmitting camera, an intermediate amplifier, and a viewing device, equipped with an oscillograph.

At television centers designed only for out-of-studio and film broadcasting, where the transmission from the studio is limited to showing the announcer or scenes with a small number of actors, the third camera of the film set can be used for studio work.

The principle of switching uniform camera channels has been put at the basis of the construction of skeletal circuits of the standard television center. In this case the switching is done at the output of the channels (or intermediate amplifiers), where mixing is done or the alternate transmission of pictures from separate transmitting cameras.

Programs from a portable television station are conducted through a system of autonomous synchronization, for which purpose there is an independent synchrogenerator among the equipment of the station.

Oscillographic devices of the channels permit observing oscillograms of the signal separately at frequencies of a multiple to line frequency and a multiple to half-frame frequency.

The transmitting tubes of Shmakov-Timofeyev have been installed in the studio cameras. Owing to this, illumination of objects cannot exceed 1,500 to 2,000 luxes. The studio cameras are supplied with a set of lens having focal distances of 28, 50, 100, and 135 mm. During the transmission one lens can be rapidly replaced by another by means of a revolving head that the operator controls.

A system based on the impulse lighting of the frame is used for projection of the picture of the cinema film on the photocathode of the transmitting tube.

Special television motion-picture film projectors are installed in the film projecting set. Provided in them are automatic electric drives for the shutter and film-tracking mechanism, owing to which their independent operation and phasing are possible. This makes it possible to combine the moment of opening the shutter with the moment of beginning the reversing of the frame scanning and running the motion picture film through.

The entire amplifying and control equipment, the blocks of feed, the synchrogenerator are placed in the control boards of the sets. This permits simplifying the set, reducing the total number of radio tubes and parts, improving the screening, and eliminating a cumbersome system of cable swinging in the cable channels.

The first transmissions of the Kharkov television center showed that the standard equipment secures a transmission with high-quality pictures and sound accompaniment.

A new portable television station was put into operation last year in Kiev. This station of the PTS-52 type is put into 2 ZIS-155 motor coaches; the main equipment including the control board, 3 camera channels, camera feed equipment, a system of synchronization, and also sound equipment, being accommodated in one coach, the equipment coach. Auxiliary equipment, and also reels with cable and so on are installed in the other motor coach. The portable television station operates on 5 cameras with highly sensitive tubes of the orthicon type with transfer of pictures.

At the beginning of the current year, the Riga center began television broadcasting. Set and studio equipment similar to that of the Kharkov television center has been installed at the Riga television center, which conducts film transmissions and small studio transmissions from a model scene and announcer studio. Work must be completed in the current year on the erection and equipment of the main television studio; a portable television station of the PTS-52 type will also be put into operation.

The Riga television center operates in the third frequency television channel.

In November 1954 trial transmissions began in Moscow of color television with a system of consecutive transmission of colors. In the present year experimental transmissions will be made from the test installation and at the same time work will be done in connection with the creation of a compatible system of color television.

In 1955 the second portable television station of the PTS-52 type will be put into operation at the Moscow television center to improve substantially the center's out-of-studio broadcasting; also for the same purpose basic work will be done on the equipment of the stationary television relaying point which will permit broadcasting television transmissions of plays and concerts from the large theatrical enterprises of Moscow (the State Academic Bolshoi Theatre USSR, its filial, the Hall of Columns of the House of Trade Unions, the State Academic Maly Theatre, the Moscow Academic Art Theatre, and a number of others). The equipment of the stationary television relaying point permits installing in the halls of theatrical enterprises up to 3 transmitting cameras with highly sensitive tubes, connected by cables with the equipment of the set of the relaying point, at the point where the technical personnel and stage directors who conduct the television transmission will be. The transmission of signals of the relaying point to the Moscow television center will be realized by means of a radio relay line.

Studio television broadcasting will also be improved during this year. Work has already begun at the Moscow television center on reconstruction of the studio set and replacement of the existing studio cameras by transmitting cameras with Shmakov-Timofeyev tubes.

The television relaying point in Leningrad will come into operation in the near future. It will make it possible to relay television transmissions from the Winter Stadium, the Theatre of Comedy, and also from the studio of the Leningrad radio house. It is planned to subsequently connect a number of other theatrical enterprises of the city to the relaying point.

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